Associations between IL-8 and distribution of heavy metals in serum and follicular fluid in woman who underwent IVF-ET

Background: The relationship between heavy metals exposure and inflammation is a matter of research interest. Objects: We investigated the associations between the serum interleukin-8(IL-8) and the distribution of heavy metals in serum and follicular fluid, including As, Cd, Cr, Hg, Pb, Ag, Co, Ni, Mo, Mn, Fe, Cu, Zn, Ge, Sn, Sb. Method: We conducted a cohort study including 305 infertile couples who need to do IVF. And 169 women who were collected both blood sample and follicular fluid sample were included in our analysis. The concentrations of heavy metals in serum and follicular fluid were measured, as well as serum IL-8. The serum-to-follicular fluid concentration ratios (sr/ff) were further calculated. Spearman's rank correlation test was abstained to analyze associations between IL-8 and heavy metals exposure. Result: As and Sn mainly accumulated in the follicular fluid compared to the serum with concentration ratios(sr/ff) of 0.79 and 0.54 respectively. While Hg, Co, Fe, Zn and Sb mainly accumulated in the serum compared to the follicular fluid with concentration ratios(sr/ff) of 1.51, 2.10, 1.93, 1.44, 1.48 and 15.60 respectively. Ag in serum and concentration ratios(sr/ff) of Ag were positively associated with serum IL-8(r=0.25, 0.16 respectively). Mo in serum and follicular fluid both were negatively associated with serum IL-8(r=-0.23, -0.7 respectively). Concentration ratios(sr/ff) of Cu was positively associated with serum IL-8(r=0.16). Zn and Sn in follicular fluid were negatively associated with serum IL-8(r=-0.22, -0.11 respectively), while concentration ratios(sr/ff) of Zn and Sn were positively associated with serum interleukin-8(r=0.25, 0.20 respectively). Conclusion: The IL-8 in serum may be associated with the distribution patterns of heavy metals in serum and follicular fluid. More mechanistic studies were needed to confirm their relationship.

Summary

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